ABSTRACT

A system for measuring the flight of a projectile, comprising a projectile comprising an exterior surface and a set of orientation identifiers distributed over the exterior surface, such that, for every orientation of the projectile, there exists, from any fixed perspective, a unique viewable configuration of a sub-set of the identifiers; means for capturing a first image of the surface of the projectile at a first time, the first image including a first configuration of a first sub-set of the orientation identifiers, means for determining the orientation of the projectile from a first configuration; means for capturing a second image of the surface of the projectile at a second time, the second image including a second configuration of a second sub-set of the orientation identifiers; means for determining the orientation of the projectile from a second configuration; and means for determining the rotational velocity of the projectile in flight from its orientation at the first time and its orientation at the second time. Also describes a method of determining the placement of orientation identifiers on the exterior surface of a projectile. A random set of dots or colored tessellated panels is checked to determine ambiguities in orientation determination, and the set of identifiers is reduced as far as possible in an iterative cycle.

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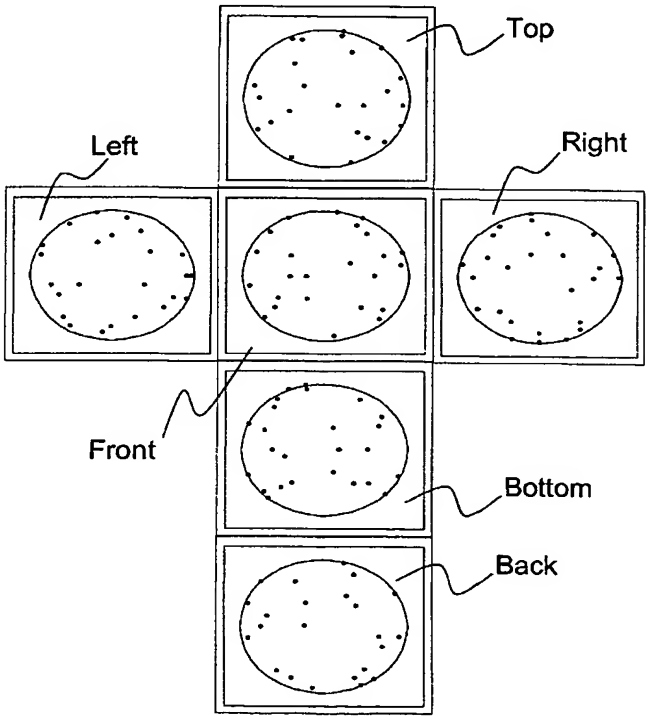
(54) Title: MARKING OF OBJECTS FOR SPEED AND SPIN MEASUREMENTS



(57) Abstract: A system for measuring the flight of a projectile, comprising: a projectile comprising an exterior surface and a set of orientation identifiers distributed over the exterior surface, such that, for every orientation of the projectile, there exists, from any fixed perspective, a unique viewable configuration of a sub-set of the identifiers; means for capturing a first image of the surface of the projectile at a first time, the first image including a first configuration of a first sub-set of the orientation identifiers; means for determining the orientation of the projectile from the first configuration; means for capturing a second image of the surface of the projectile at a second time, the second image including a second configuration of a second sub-set of the orientation identifiers; means for determining the orientation of the projectile from the second configuration; and means for determining the rotational velocity of the projectile in flight from its orientation at the first time and its orientation at the second time. Also describes a method of determining the placement of orientation identifiers on the exterior surface of a projectile. A random set of dots or coloured tessellated panels is checked to determine ambiguities in orientation determination, and the set of identifiers is reduced as far as possible in an iterative cycle.

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